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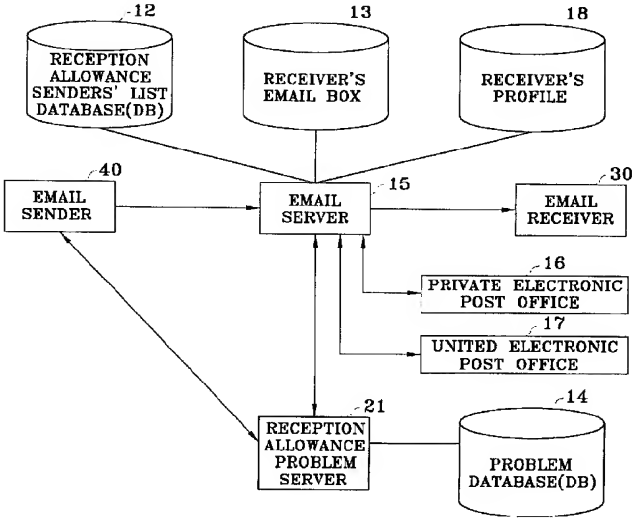
(54) Title: SYSTEM AND METHOD FOR PREVENTING SPAM MAIL



(57) Abstract: The present invention relates to a system and method for preventing spam mail. A list of senders is registered in advance. Thus, if email is received from an unregistered sender in the list, a reception allowance problem which can be solved by only a human being is sent to a corresponding email sender. Finally, emails sent from only senders who solved the problem can be received. Also, particular senders who use email commercially to obtain profits are induced to purchase electronic stamps in an electronic post office. Thus, only when an electronic stamp is included in email, the email can be received. The electronic stamp can be is classified into various patterns such as adults and so on according to the contents of the email. Also, it can be determined according to a profile of email receiver whether or not email attached with a particular electronic stamp can be received.

WO 03/054764 A1

SYSTEM AND METHOD FOR PREVENTING SPAM MAIL

Technical Field

The present invention relates to a system and method for preventing spam electronic mails (emails) and more particularly, to a system and method for preventing spam emails in order to protect users from bad effects due to spam emails, in which a problem (a problem for determining reception allowance) which can be answered by only registered senders is sent to an email sender which is not registered in a list or does not post an electronic stamp, so that emails sent from only senders who answered the corresponding problem can be received, and emails on which electronic stamps have been posted can be also received according to a profile of a receiver.

Background Art

In general, an electronic message sent from a sender to receivers having no relation with the sender is called a spam electronic mails (emails), or a junk email which is no more than a mere scrap.

Most of email service providers suffer from these spam email. Also, most of internet users would have received these spam email. Likewise, bad effects of these spam emails are very severe and are seem to grow larger and larger in the result of a recent problem inquiry.

A reception rejection or denial function and a filtering function are currently used to prevent spam emails.

The reception rejection or denial function is to reject spam emails sent by a particular sender by the roots. The filtering function blocks off emails containing a particular word or words. These two functions are included in all web mail

programs such as "outlook express". Also, mail server operators would use a server program, which intercepts a domain server itself, which sends a number of spam emails.

Alternatively, web users record their desired particular mail address in order to thus selectively receive only an email having the corresponding mail address.

By the way, a spamer (a person who sends spam emails) uses one of any other ISPs (Internet Service Providers) or company mail servers, as a relay server, without using a direct spam method of sending emails to a number of receivers via an ISP or a mail server which is used by the spamer. That is, the spamer uses a relay spam method of sending emails by disguising as if an operator of the relay server sent an advertisement email to many and unspecified persons. As a result, the spamer escapes from a reception rejection or filtering function.

Also, since an email regarded as a spam email to a certain person may not be regarded as such, a method of blocking a particular domain or address in a lump by an email server operator may get into trouble.

In the result that a daily newspaper company has investigated a "spam email fighting method" from various Internet specialists, it has been made clear that a happy idea of eliminating spam emails perfectly does not exist. In other words, it is not nearly possible to block spam emails completely up to 100%. It is the main key how to efficiently block spam emails which increase in geometrical progression.

In general, spamers send spam emails to gathered email addresses of many and unspecified persons, on a lump sum basis, using a particular spam email program. Therefore, since spam emails can be intercepted by using a spam email program of spamers, a considerable number of spam emails can be intercepted.

Also, it consumes much cost to send a post mail in a conventional off-line post office system. Such a post mailing cost is charged to a post mail sender. By

the way, since emails are used increasingly, a sender can take the advantages of sending as many as web emails simultaneously, at no cost, in comparison with a post mail delivery which is used in a conventional off-line post office system, but an email server operator which processes emails covers burdens of processing emails due to an increase in the number of emails used, in particular, spam emails, to thereby cause a burden of increasing expenses. Thus, disproportion between the email senders and the email server operators should be solved. In particular, in the case that emails are used for commercial purposes, for example, in the case that a credit card company sends a debit note to a credit card holder, a card company obtains a profit. However, since a user (an email receiver) and a receiver's end email server provides the card company with the profit, it will be necessary to reduce the profit to the email receiver or the receiver's end email server. If more users use emails through a re-distribution of profits, senders obtain more profits. Thus, it is necessary to re-distribute profits for email senders, email receivers and a receiver's end email server operators.

Disclosure of the Invention

To solve the above problems, it is an object of the present invention to provide a method for allowing for reception of emails, in which a list of senders is registered in advance in order to re-distribute profits obtained from delivery of emails and prevent reception of unnecessary spam emails, a problem (a reception allowance problem) which cannot be identified by a computer but can be identified by a person is sent to a corresponding email sender in the case that an email is sent from an unregistered email sender, and the email sent from only senders who answered the corresponding problem can be received.

It is another object of the present invention to provide an email reception allowance method for recommend particular senders who use emails commercially to obtain profits to purchase electronic stamps via a private electronic post office or a unified electronic post office, and allowing for reception of only an email attached with the electronic stamp.

It is still another object of the present invention to provide a spam emails prevention system using any of the above-described methods.

To accomplish the above object of the present invention, there is provided a spam emails prevention system for preventing spam emails, comprising: a reception allowance senders database (DB) storing a list of email reception allowance senders; a problem database (DB) storing reception allowance problems for judging whether an email sent from a sender unregistered in the reception allowance senders database (DB) will be allowed for reception; and an email server enabling transmission and reception of emails, transmitting at least one reception allowance problem to a corresponding email sender if an email has been received from the sender unregistered in the reception allowance senders database, and finally allowing for reception of the email sent from the corresponding email sender if a correct answer with respect to the reception allowance problem is received from the corresponding email sender.

There is also provided a spam emails prevention method in order to achieve the other object of the present invention, the spam emails prevention method comprising the steps of: (a) registering information of senders who wish to be allowed for reception of their own emails in a reception allowance database (DB) in advance; (b) judging whether at least one of conditions of that a sender of a received email has been registered in the reception allowance database (DB) or that predetermined data (electronic stamp) has been posted on a received email, is met;

(c) sending at least one reception allowance problem to an email address of a corresponding email sender in the case that it is judged that both conditions have not been met in step (b); (d) checking whether an answer with respect to the reception allowance problem is replied from the sender having the email address for a predetermined time, and judging whether the answer with respect to the reception allowance problem replied within the predetermined time is a correct answer; and (e) allowing for reception of the email sent from the corresponding email sender only if the replied answer is the correct answer in the result of step (d).

Brief Description of the drawings

The above objects and other advantages of the present invention will become more apparent by describing the preferred embodiments thereof in more detail with reference to the accompanying drawings in which:

FIG. 1 is a configurational diagram showing an embodiment of a spam emails prevention system according to the present invention;

FIG. 2 is a flow chart view for explaining a process of preventing spam emails by using a reception allowance problem and/or an electronic stamp according to the present invention;

FIGs. 3A and 3B show an example of a reception allowance problem of an email sent to an unregistered sender according to the present invention, respectively;

FIG. 4 shows a data structure of each reception allowance problem stored in a problem database (DB);

FIG. 5 is a flow chart view for explaining an email reception process using an electronic stamp for member participation; and

FIG. 6 is a configurational diagram showing another embodiment of a spam

emails prevention system according to the present invention.

Best Mode for Carrying out the Invention

Preferred embodiments of the present invention will be described in detail with reference to the accompanying drawings.

First embodiment

FIG. 1 is a configurational diagram showing an embodiment of a spam emails prevention system according to the present invention.

An email server 11 is a server, which enables a user having an account of an email server 11 to transmit and receive an email, and confirms whether a received email is sent from an registered sender by an email receiver 30 or an operator of the email server 11. For this purpose, the email receiver 30 and the operator of the email server 11 register a list of senders whose emails will be allowed for reception, in advance in a database. If it has been confirmed that an email has been sent from one of the registered senders in the result of confirmation, the email server 11 stores the corresponding email in an email box 13 of the email receiver 30. Meanwhile, if it has been confirmed that an email has been sent from one of the unregistered senders in the result of confirmation, the email server 11 sends a problem for judging whether the email sent from a corresponding sender will be allowed for reception (hereinbelow called a reception allowance problem) to the corresponding sender 40.

Here, the reception allowance problem sent to the email sender 40 has a structure which cannot be understood and answered by a computer but can be understood and answered by only a person. FIGs. 3A and 3B show an example of a reception allowance problem of an email sent to an unregistered sender according to

the present invention, respectively.

The reception allowance problem, which is sent to an unregistered email sender, can have one of the following structures, which can be answered by a person not by a computer.

1) A text pattern such as a problem "What is left if a number 1000 is subtracted from this year?";

2) An image and text hybrid pattern of transmitting a text such as a problem "What figure is it painted in the middle of a picture attached hereto?" together with the picture as shown in FIG. 3A;

3) A sound and text hybrid pattern of transmitting a text such as a problem "What is a third letter in a current song?" together with the song including words; and

4) A text and event hybrid pattern of transmitting a text such as a sentence "Please click in an alphabetical order with a mouse." or "Please press a corresponding key on a keyboard." after displaying a picture as shown in FIG. 3B on a terminal (not shown) of the email sender. As described above, the pattern of the problem can be made of a pattern of mixing one or two or more of a text, image, sound and event. Also, a sound or image can be transmitted alternately for handicapped persons. The reception allowance problem is made as a database in advance, and then extracted and sent in sequence or at random. Otherwise, a problem made and selected directly by an email receiver 30 is set in the email server 11 and then can be used. Also, a reception allowance problem can be sent or a plurality of reception allowance problems can be sent simultaneously or in sequence. In the case that a plurality of reception allowance problems are sent, the email server 11 stores the email of the corresponding email sender in the email box 13 of the corresponding email receiver for confirmation, only if the email sender succeeds to answer all the corresponding reception allowance problems.

In this case, since the present invention identifies whether an email is sent in a lump sum, simultaneously and abundantly by a computer according to a particular program such as a spam emails program, or directly by a sender, in order to block only the spam email, problems sent to the sender 40 should be answered easily by any person not by a computer.

A reception allowance senders' list database (DB) 12 stores information with which senders such as an email address list of registered senders or an IP (Internet Protocol) address list of email senders (hereinafter a reception allowance address book) can be identified by a user. Here, the reception allowance address book is divided into an individual address book or a server address book. The contents stored in the individual address book are senders' information, which each email receiver 30 wishes to receive. Accordingly, an email sent from a sender registered in the individual address book is stored in an email box 13 of a corresponding receiver. Thus, the corresponding email receiver can identify the email in the email box 13. The contents stored in the server address book are senders' information registered by an operator of the email server 11. Accordingly, an email sent from a sender registered in the server address book can be stored in the email box 13 of a corresponding email receiver 30 compulsorily, without having permission from the email receiver 30, even though the sender is not registered in the individual address book.

Each email receiver 30 can register his or her desired email senders' information in his or her individual address book by one of the following methods. That is, each email receiver 30 can access the email server 11 with his or her terminal (not shown), and enter his or her desired email senders' information in the email server 11. Also, in the case that a user of the email server 11, that is, the email receiver 30 sends an email, the email address can be automatically registered in his or

her individual address book. In this case, the email address is not automatically registered in the individual address book, but the email receiver 30 is asked whether or not the email address is registered in his or her individual address book. Thus, only if the email receiver 30 wishes to register the email address in his or her individual address book, the email address is registered therein. Further, the email server 11 can transmit a confirmation email to the sender that his or her information has been registered in the email receiver's individual address book. Reversely, the other end email server can transmit an email for confirming whether the sender's information has been registered in the receiver's individual address book, to the email sender, in the case that the other end email server is also an email server operating according to the present invention.

If an email sent from a sender includes a specific mark or data (hereinafter referred to as an electronic stamp) contracted with the email server 11 although the sender has not been registered in a receiver's reception allowance address book, the email server 11 allows the corresponding email to be stored in the receiver's email box 13. Finally, only if a sender has not been registered in a receiver's reception allowance address book and an email sent from the sender does not include any electronic stamp, the email server 11 sends a reception allowance problem to the corresponding email sender. The electronic stamp is sold by a private electronic post office 16 of the operator of the email server 11 or a united electronic post office 17 authorized by email server operators.

The private electronic post office 16 is an email post office which a corresponding email server 11 runs independently. The united electronic post office 17 denotes a public post office which allows a number of email servers to use a united stamp system. These electronic post offices 16 and 17 does not only issue electronic stamps for sale, but also play a role of confirming an authentication and

validation of an electronic stamp posted on an email. When unregistered email senders send massive commercial emails, they may purchase electronic stamps at the private electronic post office 16 or the united electronic post office 17 and post the purchased electronic stamp on their emails, respectively. In this case, the unregistered email senders do not need to reply to the reception allowance problems for the massive emails, respectively. Also, in the case that the email receiver 30 receives an email on which an electronic stamp has been posted, a certain amount of the corresponding electronic stamp value can be distributed to the corresponding receiver 30.

Here, the email server 11 is representative of all document transmission server which can transmit electronic documents such as internet emails, instant messaging systems (IMSs), and short messaging systems (SMSs). That is, the email server 11 is nothing but an example in order to describe the present invention. Thus, it is apparent that all terminals capable of transmitting and receiving electronic documents such as computers, PDAs (Personal Digital Assistants), mobile telecommunications terminals, Internet TVs can be used as client terminals which are involved with the email server 11 and used by the email receiver 30 and the email sender 40, according to the function of the email server 11.

FIG. 2 is a flow chart view for explaining a process of preventing spam emails by using a reception allowance problem and/or an electronic stamp according to the present invention.

A certain email sender 40 sends an email to many and unspecified persons including an email receiver 30 (step 201).

An email server 11 of the email receiver 30 having received the email sent from the email sender 40 confirms whether the corresponding email sender 40 is a sender registered in an email receiver's reception allowance address book of

reception allowed senders' list database 12 (step 202). A method of confirming an email address of an email sender, or a method of confirming an IP (Internet Protocol) address of an email sender end (an email sender terminal and an email sender end server) together with an email address is used as a method of confirming the email sender 40. Since an email address of a sender may be misused in a fraud act by the sender, an IP address of the sender end terminal (not shown) and an IP address of the sender end email server (not shown) are found from the received email, and compared and searched with the registered IP addresses, to thereby judge whether the sender has been registered.

If the email sender 40 is not a sender who has not been registered in the reception allowed senders' list database 12 in the judgment result of step 202, the email server 11 confirms whether an electronic stamp has been posted on the corresponding email (step 203). It is confirmed whether the corresponding email will be allowed for reception by confirming in steps 202 and 203 whether an electronic stamp has been posted on the corresponding email. Otherwise, it can be confirmed whether an electronic stamp has been posted on the corresponding email even though the email sender is a sender who has been registered in the reception allowed senders' list database 12. Also, one of steps 202 and 203 can be skipped, that is, only one step 202 or 203 can be used. The electronic stamp is encrypted so that it may not be illegally used and transmitted to the email server 11.

If an electronic stamp has not been posted on an email, that is, if the email has not been registered in the reception allowance address book and no electronic stamp has not been posted on the email, in the result of step 203, the email server 11 sends a message such as a sentence "Since the email sender 40 has not been registered, the email sent by the email sender 40 cannot be seen by the email receiver 30. Please reply to the attached problem in order to make the email receiver 30

open and see the email." As illustrated in FIG. 4, any one reception allowance problem (e. g., no. 152) is selected in sequence or at random from a problem database (DB) 14 in which reception allowance problems are constructed as a database, and the selected reception allowance problem is transmitted together with an image of FIG. 3 (step 204). Also, only a problem can be transmitted or a number of problems can be transmitted simultaneously or in sequence, when a reception allowance problem is transmitted. In the case that the email sender 40 uses the Internet email, a particular URL (Universal Resources Locator) is submitted to access to a corresponding URL to solve a reception allowance problem.

If the email is attached with an electronic stamp in the result of step 203, the email server 11 confirms whether the attached electronic stamp is authenticated by a private electronic post office 16 or a public unified electronic post office 17 (step 211). If the attached electronic stamp is an authenticated electronic stamp, the email server 11 finds out the validity and kind of the electronic stamp through the corresponding electronic post office 16 or 17 having authenticated the electronic stamp (step 212). If the electronic stamp has been authenticated as a valid electronic stamp at the electronic post office 16 or 17, the email server 11 searches a profile 18 set by an email receiver 30, and then determines whether the email will be finally received by a receiver (step 213). If the email is attached with the electronic stamp but is not an email which is allowed by the receiver, according to the receiver's profile 18 in step 213, the email sender 40 is notified that the email cannot be allowed for reception (step 210). If the attached electronic stamp is not a valid electronic stamp in step 212, the email server 11 notifies the sender that the attached electronic stamp is not a valid electronic stamp, and then deletes the email of the corresponding sender (step 214).

The electronic stamp can be designed to vary according to the contents of an

email to be sent. A user can buy an electronic stamp which matches the contents of an email to be sent at electronic post office 16 or 17 which examines the corresponding email contents. The electronic stamp is classified into various forms, i. e. adult, premium, confirmation of membership, confirmation of commodity purchase, etc. However, in the case that the receiver's profile 18 rejected adult emails even if a commercial adult email has been posted with an adult electronic stamp, the commercial adult email is not received at receivers' end. In this manner, adult emails posted with adult electronic stamps can be blocked fundamentally from being received at minors' end.

Also, in the case that a user enters his or her own email address to participate in a certain website, a membership application email is posted with a "membership application" electronic stamp, so that the website server can receive the emails posted with the "membership application" electronic stamp. For this reason, emails, which are sent in public to individual users, can be easily received without being stored each time in a reception allowance address book, which will be described later with reference to FIG. 5.

The email server 11 checks whether an answer to a corresponding problem is replied from the email sender 40 having received the reception allowance problem (step 205). If the sender 40 has not transmitted an answer in the checking result of step 205, the email server 11 deletes the received email or removes it to a junk email box. If the sender 40 has sent an answer, the email server 11 confirms whether the answer sent by the sender 40 is a correct answer (step 206). Here, a correct answer is pre-stored and a received answer is compared with the pre-stored correct answer, for giving marks. In the case that there is no reply for a certain period of time from the email sender 40 in step 205, the email sent from the corresponding email sender 40 is also deleted. Since emails sent from email senders who have not been allowed

for reception are stored in a junk email box for a predetermined period of time, and then deleted after the period of time, users can identify the disallowed emails as desired afterward.

If the received answer is a correct answer in the confirmation result of step 206, the email server 11 notifies the email sender 40 that the received answer is the correct answer (step 207). Then, the email sent from the corresponding email sender 40 is stored in the email box 13 of the email receiver 30, to thereby allow the email receiver 30 to identify the received email (step 208). In this case, only in the case that every answer for problems is a correct answer when a number of problems have been transmitted, the operation of step 207 is performed.

If a received answer is not a correct answer, the email server 11 judges whether the number of times of the wrong answers received is less than a predetermined number of times (step 209). If the number of times of the wrong answers is less than the predetermined number of times, the reception allowance problem is transmitted again to the corresponding email sender 40 until the number of times of the wrong answers reaches the predetermined number of times, so that steps 204 through 206 can be repeatedly performed. If the number of times of the wrong answers is larger than the predetermined number of times, the email sender is notified that his or her email cannot be allowed for reception. Then, the email server 11 deletes the corresponding sender's email (step 210).

If the email sender 40 is a sender who has been registered in the reception allowed senders' list database (DB) 12 in step 202, or the email posted with the electronic stamp is an email which is allowed by the receiver in step 211, the program proceeds to step 208, in which the corresponding email is stored in the email box 13 of the receiver 30 so that the receiver can identify the email.

FIG. 5 is a flow chart view for explaining an email reception process using

an electronic stamp for member participation.

If a user, that is, an email receiver 30 participates in a particular website (step 501), an email address at which emails can be received is entered (step 502). If an email address is entered into a particular website in which an email receiver has been participated with the email address, the website requests an electronic post office 16 or 17 for an electronic stamp automatically (step 503). Here, the electronic post office 16 or 17 distributes a membership participation electronic stamp to the particular website having requested for an electronic stamp (step 504). An email server at the website end which has received the membership participation electronic stamp sends an email posted with the membership participation electronic stamp to a membership which is an email receiver automatically (step 505). A user, that is, an email server 11 at the end of the email receiver 30 identifies that an email posted with the membership participation electronic stamp is a membership dedicated email, and stores the corresponding email in an email box 13 of the receiver 30, to allow the receiver to confirm the email (step 506).

This method can be used for all areas allowing users to participated in particular websites so that emails can be received via the particular websites. For example, after a user has purchased a product at an online shopping mall website, this method can be adopted in a case where the online shopping mall website sends an email to the corresponding user in connection with the product purchase result.

When employing the above-described method, an unregistered sender who has sent a spam email receives at least one reception allowance problem. In a case where spam emails are sent to many and unspecified persons in a lump by a computer, a correct answer to each of the corresponding problems cannot be replied to the reception allowance problem sender. Accordingly, the email receiver is free from unnecessary spam emails. If an email sender wishes to send an email to an email

receiver 30, the email sender should purchase an electronic stamp. As a result, the operator of an email server 11 and the email receiver 30 can get a profit.

Second embodiment

FIG. 6 is a configurational diagram showing another embodiment of a spam emails prevention system according to the present invention.

A spam emails prevention system of FIG. 6 is almost the same as that of FIG. 1. As only a difference between the FIGs. 1 and 6 systems, a reception allowance problem server 21 for managing and operating reception allowance problems is included in the FIG. 6 system. In a case where the reception allowance problem server 21 is separated from an email server 15 and then operated as shown in FIG. 6, the single reception allowance problem server 21 can be used in correspondence to a plurality of different email servers.

The email server 15 confirms whether a sender of a received email has been registered. Then, the email server 15 sends a signal demanding a reception allowance problem (hereinafter called a problem demand signal) in a case where the sender has not been registered in a reception allowed senders' list database (DB) 12, to the reception allowance problem server 21.

The reception allowance problem server 21 manages and controls a problem database (DB) 14. If the reception allowance problem server 21 has received a problem demand signal from the email server 15, the reception allowance problem server 21 selects at least one reception allowance problem stored in the problem DB 14 and a correct answer of each corresponding problem in sequence or at random and assigns the selected problem and answer to the email server 15.

The email server 15 sends the reception allowance problem having assigned

from the reception allowance problem server 21 to a corresponding sender 40, and stores the corresponding answer separately. The email server 15 compares an answer having received from the corresponding email sender 40 with the stored answer and confirms whether the received answer is a correct answer. Besides, the other processes of the FIG. 6 embodiment are the same as those of the FIG. 1 embodiment.

Third embodiment

The third embodiment is configured in the same manner as that of the FIG. 6 second embodiment. In the third embodiment, a reception allowance problem server 21 sends a reception allowance problem directly to a sender and receives an answer from a corresponding sender to then judge whether an email of the sender will be received.

The email server 15 confirms whether a sender of a received email has been registered, and sends an email address of the corresponding sender together with the confirmation result of registration to the reception allowance problem server 21.

If the reception allowance problem server 21 has received a signal indicating that an email of an unregistered sender has been received and an email address of the corresponding sender from the email server 15, the reception allowance problem server 21 sends a reception allowance problem stored in a problem database (DB) 14 directly to the corresponding sender 40 and then receives an answer from the corresponding sender 40 to then confirm whether the received answer is a correct answer. In a case where an answer from the corresponding sender 40 is a correct answer in step 206 of FIG. 2, the reception allowance problem server 21 notifies the email server 15 and the corresponding sender that the received answer is a correct

answer. However, if the received answer is not a correct answer, a reception allowance problem is sent to the corresponding sender 40 by the number of times, in order to judge whether the email will be allowed for reception. If the corresponding sender fails to send a correct answer by the number of times, the reception allowance problem server 21 sends the fact that the corresponding sender has not succeed in sending a correct answer, to the email server 15.

The email server 15 notifies the corresponding sender that the email of the corresponding sender has been denied for reception in a case where the email server 15 has not received from the reception allowance problem server 21 that a reply has not been received from the corresponding sender for a predetermined set time, or a correct answer has not been by a predetermined number of times. Then, the corresponding email is deleted or separately stored in a junk email box. The other processes of the third embodiment are the same as those of the first and second embodiments.

Fourth embodiment

The fourth embodiment differs from the above-described first through third embodiments, and provides a spam emails prevention system which uses at least one temporary email account other than a main email account which is used mainly. That is, this fourth embodiment enables a single email server to support a plurality of email accounts (a main email account and a plurality of temporary email accounts), differently from the conventional case where a single email server supports a single email server. Here, a temporary email account among the email accounts can be created anytime at a user's desired point in time and registered in an email server (not shown), and then used or deleted. The email server (not shown) unifies and manages a plurality of emails

which are received at email accounts which have been registered in the name of an identical user, in a single reception database (DB) (not shown). Accordingly, a user can check emails which are received through a plurality of temporary email accounts, in unification through a main email account. Thus, a temporary email account through which spam emails are frequently received can be deleted anytime, and an email account can be created anytime in accordance with a purpose of an email server user.

When a reply is performed at the time of checking an email received at a temporary email account by using a main email account, an email server confirms whether the email has been received through which email account so that the reply is accomplished through a corresponding email account. In this manner, users can freely use an email server without any confusion with respect to whether an email account of the received email is a main email account or a temporary email account.

The temporary email account can be applied to various purposes in a case that a draft is contributed on a bulletin board. Also, a temporary email account is created when a situation-vacant advertisement, that is, a help want ad is placed, and then the corresponding temporary email account can be easily deleted if the situation-vacant advertisement is not valid after a certain period of time has elapsed.

As described above, the spam emails prevention system and method according to the present invention sends at least one problem whose answer is figured out by only a person not by a computer, to an unregistered email sender. Accordingly, spam emails, which are mechanically distributed in abundance, can be prevented in advance from being received at receivers' ends. Also, profits obtained from unregistered email senders' purchase of electronic stamps are distributed to email receivers and email server operators. Accordingly, a use of emails can be encouraged, and a re-distribution of profits can be achieved. In addition, a different kind of an electronic stamp, for example, an adult-use electronic stamp or a

membership participation electronic stamp is used according to the contents of an email. As a result, an email posted with an electronic stamp is not allowed for reception unconditionally but an allowance for reception is determined by searching a profile set by an email receiver, thereby fundamentally preventing a minority from receiving an adult-use email.

Industrial Applicability

As described above, the spam emails prevention system and method according to the present invention can be widely applied in a website field, an electronic commerce field, an email management field, and so on, which uses an email.

The present invention is not limited in the above-described embodiments. It is apparent to one who is skilled in the art that there are many variations and modifications without departing off the spirit of the present invention and the scope of the appended claims.

CLAIMS

1. A spam emails prevention system for preventing spam emails, comprising:

a reception allowance senders' list database (DB) storing a list of email reception allowance senders;

a problem database (DB) storing reception allowance problems for judging whether an email sent from a sender unregistered in the reception allowance senders' list database (DB) will be allowed for reception; and

an email server enabling transmission and reception of emails, transmitting at least one reception allowance problem to a corresponding email sender if an email has been received from the sender unregistered in the reception allowance senders' list database, and finally allowing for reception of the email sent from the corresponding email sender if a correct answer with respect to the reception allowance problem is received from the corresponding email sender.

2. A spam emails prevention system for preventing spam emails, comprising:

a reception allowance senders' list database (DB) storing a list of email reception allowance senders;

a problem database (DB) storing reception allowance problems for judging whether an email sent from a sender unregistered in the reception allowance senders' list database (DB) will be allowed for reception;

at least one email server enabling transmission and reception of emails, and transmitting each problem request signal to a predetermined reception allowance problem server if an email has been received from the sender unregistered in the reception allowance senders' list database; and

a reception allowance problem server controlling the problem database (DB), and transmitting at least one reception allowance problem and the correct answer of the corresponding problem which are stored in the problem database (DB) to the corresponding email server if the problem request signal has been received from the email server,

wherein the at least one email server transmits the at least one reception allowance problem received from the reception allowance problem server to the corresponding sender, and finally allows for reception of the email sent from the corresponding email sender if a correct answer with respect to the reception allowance problem is received from the corresponding email sender.

3. A spam emails prevention system for preventing spam emails, comprising:

a reception allowance senders' list database (DB) storing a list of email reception allowance senders;

a problem database (DB) storing reception allowance problems for judging whether an email sent from a sender unregistered in the reception allowance senders' list database (DB) will be allowed for reception;

at least one email server enabling transmission and reception of emails, and transmitting each problem request signal and an email address of the corresponding email sender to a predetermined reception allowance problem server if an email has been received from the sender unregistered in the reception allowance senders' list database; and

a reception allowance problem server controlling the problem database (DB), transmitting at least one reception allowance problem which is stored in the problem database (DB) to the email address of the email sender, receiving an answer from the corresponding email sender, if the problem request signal and the email

address have been received from the email server, and transmitting whether or not the answer from the corresponding email sender is a correct answer, to the email server,

wherein the at least one email server finally allows for reception of the email sent from the corresponding email sender if it is received from the reception allowance problem server that the correct answer with respect to the reception allowance problem has been received from the email sender.

4. The spam emails prevention system of any one of claims 1 to 3, further comprising an electronic post office which puts on sale electronic stamps which match in correspondence to the content of an email to be sent, so that email senders purchase the suitable electronic stamps to be posted on the emails, respectively.

5. The spam emails prevention system of claim 4, wherein the email server allows for reception of the corresponding email irrespective of the fact that the corresponding email sender has been registered in the reception allowance senders' list database (DB), in a case where a predetermined electronic stamp has been posted on the received email.

6. The spam emails prevention system of claim 4, wherein the electronic post office verifies whether the electronic stamp posted on the received email is true and valid, and confirms the kind of the electronic stamp.

7. The spam emails prevention system of claim 6, wherein the email server searches for a profile set by an email receiver and determines whether the contents of the email can be acceptable to the email receiver, in order to allow for reception of the email, if the electronic stamp posted on the received email has been verified into a valid electronic stamp by the electronic post office, and notifies the email sender that the electronic stamp is invalid if the electronic stamp posted on the received email has been verified into an invalid electronic stamp by the electronic post office.

8. The spam emails prevention system of claim 7, wherein the email server

does not allow for reception of an email if an adult-use electronic stamp is posted on a received email and an email receiver is a person under age.

9. The spam emails prevention system of claim 4, wherein the electronic post office distributes a particular electronic stamp to a corresponding website, in a manner that an email is posted with an electronic stamp proving that the email is transmitted to a user who allows for reception of the email of a particular website to indicate that the email is an email transmitted from the reception allowed website, when the email is transmitted to the user who allows for reception of the email of the particular website.

10. The spam emails prevention system of claim 9, wherein the electronic post office distributes a membership participation electronic stamp to a particular website, in a manner that an email is posted with an electronic stamp proving that an email sender is a membership of the website to indicate that the email is a membership dedicated email, when an email server of the particular website transmits the email to the membership.

11. The spam emails prevention system of claim 1 or 2, wherein the email server notifies a corresponding email sender of a denial of reception, to then delete the corresponding email or separately store it in a junk email box, in a case where the email server has not received any reply for a predetermined time, or has not received any correct answer by a certain number of times, from the corresponding email sender.

12. The spam emails prevention system of claim 3, wherein the email server notifies a corresponding email sender of a denial of reception, to then delete the corresponding email or separately store it in a junk email box, in a case where the email server has received, from the reception allowance problem server, a signal that has not received any reply for a predetermined time, or has not received any correct

answer by a certain number of times, from the corresponding email sender.

13. The spam emails prevention system of claim 11, wherein the email server uses language information set in a sender's email and transmits a reception allowance problem matching the language to the corresponding email sender.

14. The spam emails prevention system of claim 12, wherein the email server uses language information set in a sender's email and transmits a reception allowance problem matching the language to the corresponding email sender.

15. The spam emails prevention system of any one of claims 1 to 3, wherein the reception allowance senders' list database (DB) comprises:

a servers' list storing information of the email senders whose emails are allowed for reception by each email server operator; and

an individuals' list storing information of the email senders whose emails are allowed for reception by each email receiver.

16. The spam emails prevention system of claim 15, wherein the reception allowance senders' list database (DB) stores an email address of each sender or an IP (Internet Protocol) address of each sender end.

17. The spam emails prevention system of claim 16, wherein the email server compares at least one of an email address of each sender and an IP (Internet Protocol) address of each sender end, with a value prestored in the reception allowance senders' list database (DB), to thus judge whether the sender has been registered in the reception allowance senders' list database (DB).

18. The spam emails prevention system of claim 15, wherein the email server stores emails sent from the senders registered in the servers' list, in an email box of each email receiver without any permission from each email receiver.

19. The spam emails prevention system of claim 15, wherein the email server registers the corresponding email information in the reception allowance

senders' list database (DB) automatically, when the email server transmits the email to an email address unregistered in the reception allowance senders' list database (DB), or inquires the reception allowance senders' list database (DB) whether the corresponding email information will be registered in the reception allowance senders' list database (DB).

20. A spam emails prevention system comprising:

an email server enabling transmission and reception of emails, and assigning at least two email accounts to an email user and integrating and managing emails received via the at least two email accounts; and

a reception email database (DB) integrating and storing the emails received via the at least two email accounts.

21. The spam emails prevention system of claim 20, wherein the email server replies to the corresponding email sender, by using an email account used for reception of the email of the at least two email accounts when the email server replies to the received email.

22. A spam emails prevention method comprising the steps of:

(a) registering information of senders who wish to be allowed for reception of their own emails in a reception allowance database (DB) in advance;

(b) judging whether at least one of conditions of that a sender of a received email has been registered in the reception allowance database (DB) or that predetermined data (electronic stamp) has been posted on a received email, is met;

(c) sending at least one reception allowance problem to an email address of a corresponding email sender in the case that it is judged that both conditions have not been met in step (b);

(d) checking whether an answer with respect to the reception allowance problem is replied from the sender having the email address for a predetermined time,

and judging whether the answer with respect to the reception allowance problem replied within the predetermined time is a correct answer; and

(e) allowing for reception of the email sent from the corresponding email sender only if the replied answer is the correct answer in the result of step (d).

23. The spam emails prevention method of claim 22, wherein the reception allowance problem cannot be solved by a computer but solved only by a person who identifies the reception allowance problem.

24. The spam emails prevention method of claim 22, wherein the email of the corresponding email sender is deleted or separately stored in a junk email box, in a case where no correct answer with respect to the reception allowance problem has received for a predetermined time from the corresponding email sender having an email address.

25. The spam emails prevention method of claim 22, wherein the reception allowance problem transmitted to the corresponding email sender in step (b) is written in language corresponding to that set in the email of the corresponding email sender.

26. The spam emails prevention method of claim 22, wherein at least one of an email address of each sender and an IP (Internet Protocol) address of each sender end, is compared with a value prestored in the reception allowance senders' list database (DB), to thus judge whether the sender has been registered in the reception allowance senders' list database (DB), in the reception allowance senders' list database (DB) registration step.

27. The spam emails prevention method of claim 22, wherein step (c) comprises the sub-steps of:

(c1) authenticating whether an electronic stamp is true if the electronic stamp has been posted on the email in the result of step (b);

(c2) confirming whether the electronic stamp authenticated in step (c1) is valid;

(c3) judging whether the email is an email allowed for reception by an email receiver if it has been confirmed in step (c2) that the electronic stamp is valid, and notifying an email sender that the electronic stamp is not valid if it has not been confirmed in step (c2) that the electronic stamp is valid; and

(c4) allowing for reception of the email only if the email is an email allowed for reception by the email receiver in step (c3).

28. The spam emails prevention method of claim 27, wherein step (c3) comprises the sub-steps of searching a profile of an email receiver if the electronic stamp is an adult-use electronic stamp and judging whether the email will be allowed for reception to the email receiver.

FIG. 1

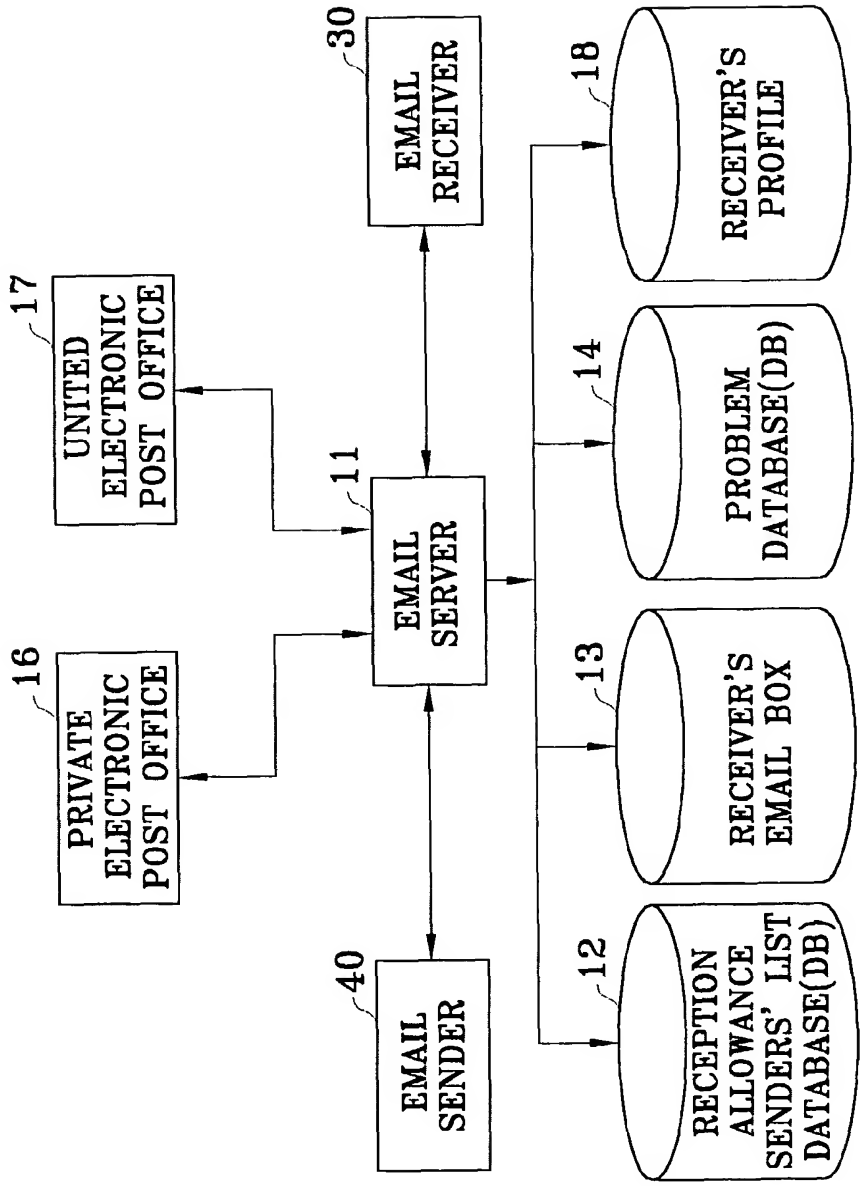

EMAIL SENDER
40
EMAIL SERVER
11
EMAIL RECEIVER
30
PRIVATE ELECTRONIC POST OFFICE
16
UNITED ELECTRONIC POST OFFICE
17
RECEPTION ALLOWANCE SENDERS' LIST DATABASE(DB)
12
RECEIVER'S EMAIL BOX
13
PROBLEM DATABASE(DB)
14
RECEIVER'S PROFILE
18

FIG. 2A

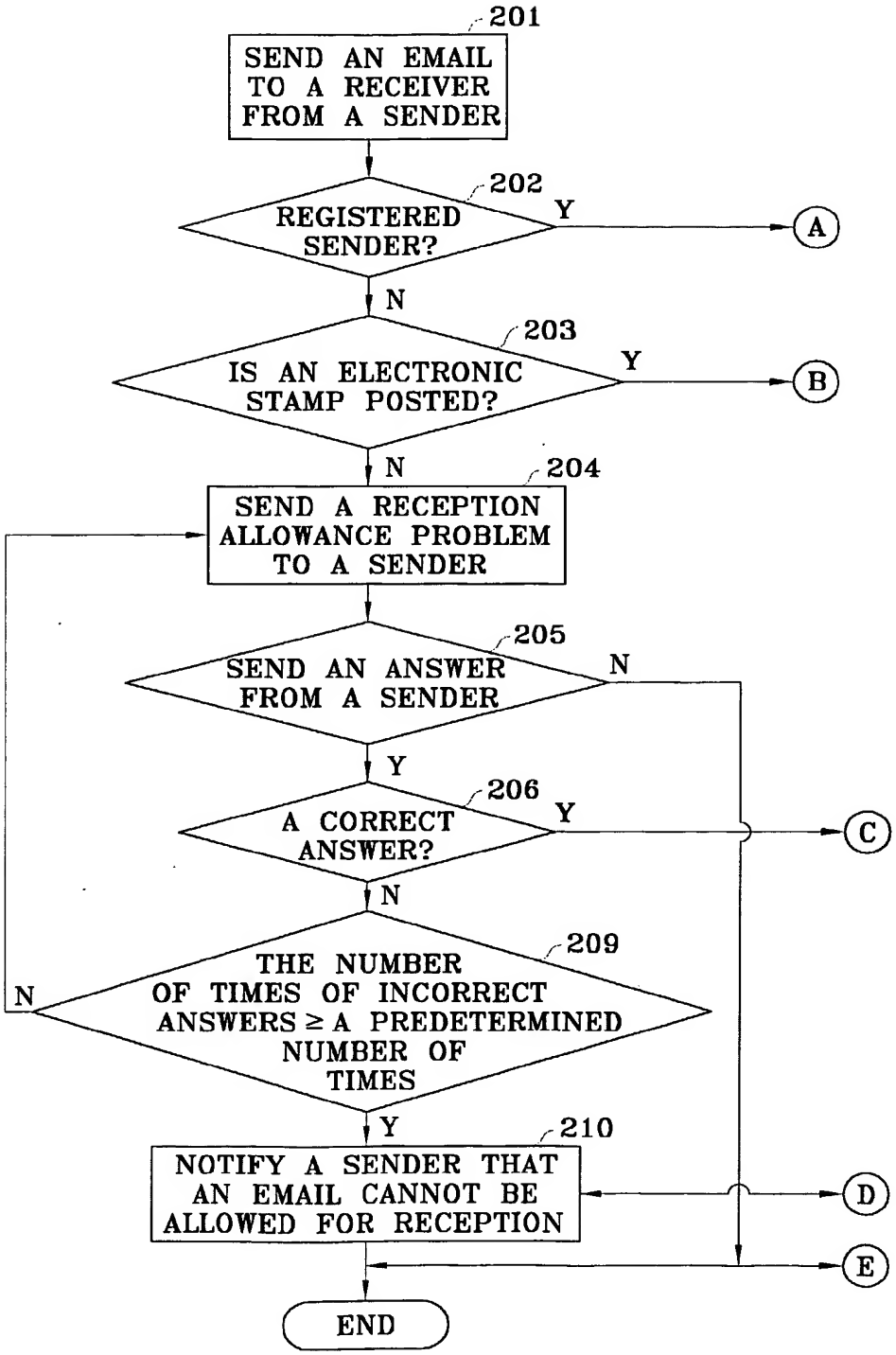

201
SEND AN EMAIL TO A RECEIVER FROM A SENDER
202
REGISTERED SENDER?
Y
A
N
203
IS AN ELECTRONIC STAMP POSTED?
Y
B
N
204
SEND A RECEPTION ALLOWANCE PROBLEM TO A SENDER
205
SEND AN ANSWER FROM A SENDER
N
Y
206
A CORRECT ANSWER?
Y
C
N
209
THE NUMBER OF TIMES OF INCORRECT ANSWERS ≥ A PREDETERMINED NUMBER OF TIMES
N
Y
210
NOTIFY A SENDER THAT AN EMAIL CANNOT BE ALLOWED FOR RECEPTION
D
E
END

FIG. 2B

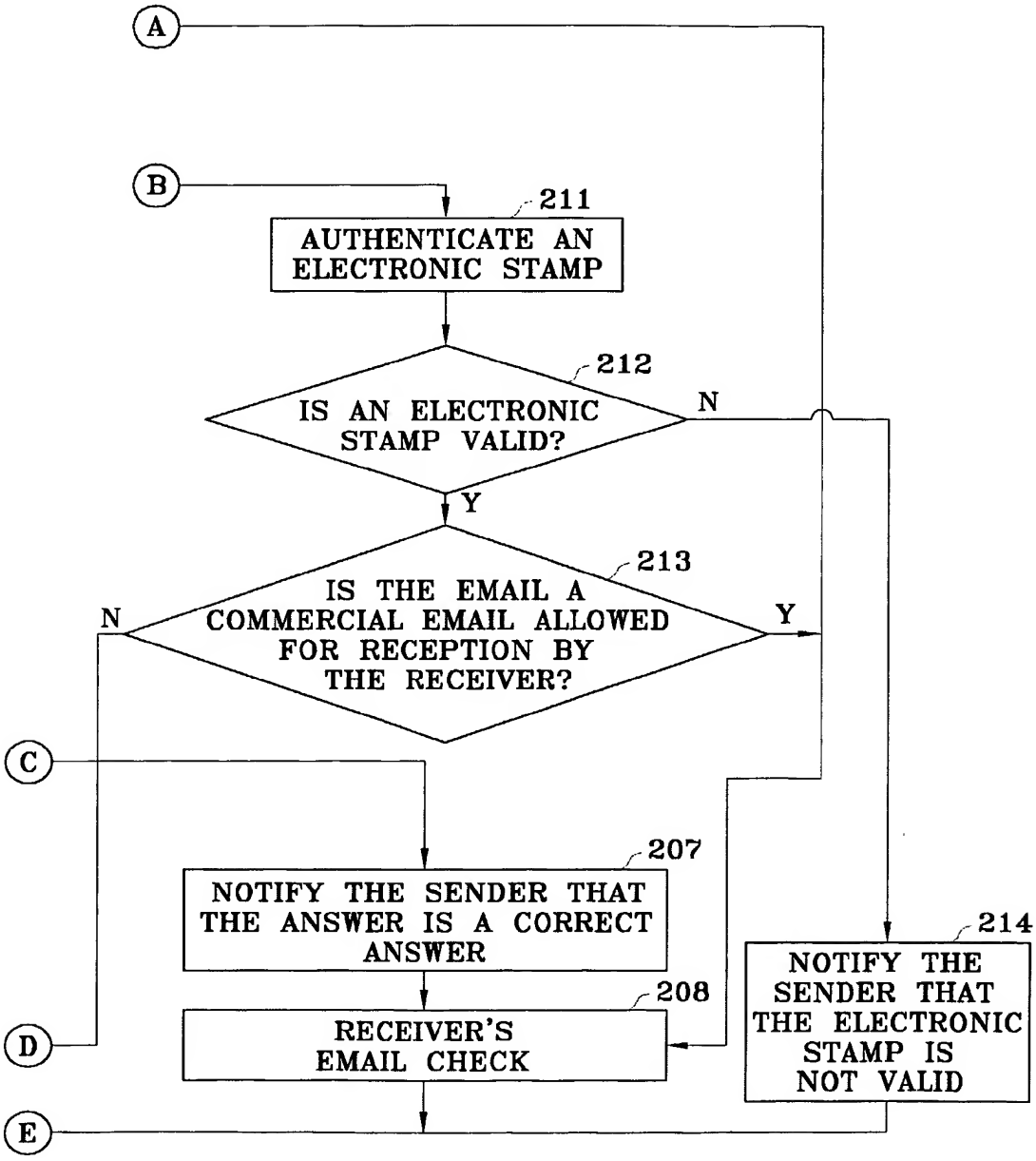

A
B
211
AUTHENTICATE AN ELECTRONIC STAMP
212
IS AN ELECTRONIC STAMP VALID?
N
Y
213
IS THE EMAIL A COMMERCIAL EMAIL ALLOWED FOR RECEPTION BY THE RECEIVER?
N
Y
C
207
NOTIFY THE SENDER THAT THE ANSWER IS A CORRECT ANSWER
208
RECEIVER'S EMAIL CHECK
D
214
NOTIFY THE SENDER THAT THE ELECTRONIC STAMP IS NOT VALID
E

FIG. 3A

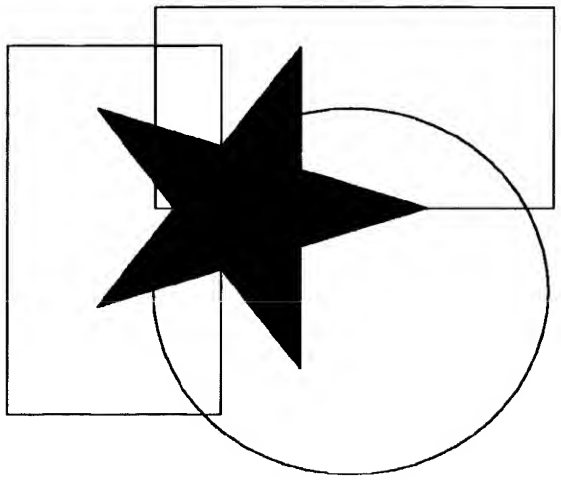


FIG. 3B

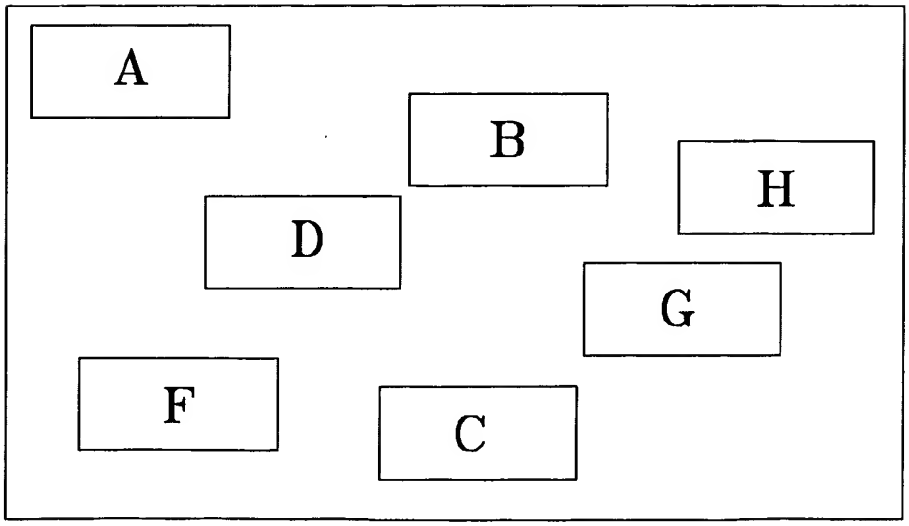


FIG. 4

[PROBLEM NUMBER]	PROBLEM	CORRECT ANSWER
. . . . .	. . .	. . .
151	WRITE A FIGURE OBTAINED BY SUBTRACTING 1000 FROM THIS YEAR	1901
152	WHAT IS A PATTERN COLORED IN THE MIDDLE OF THE FOLLOWING PICTURE?	STAR
. . . . .	. . .	. . .

FIG. 5

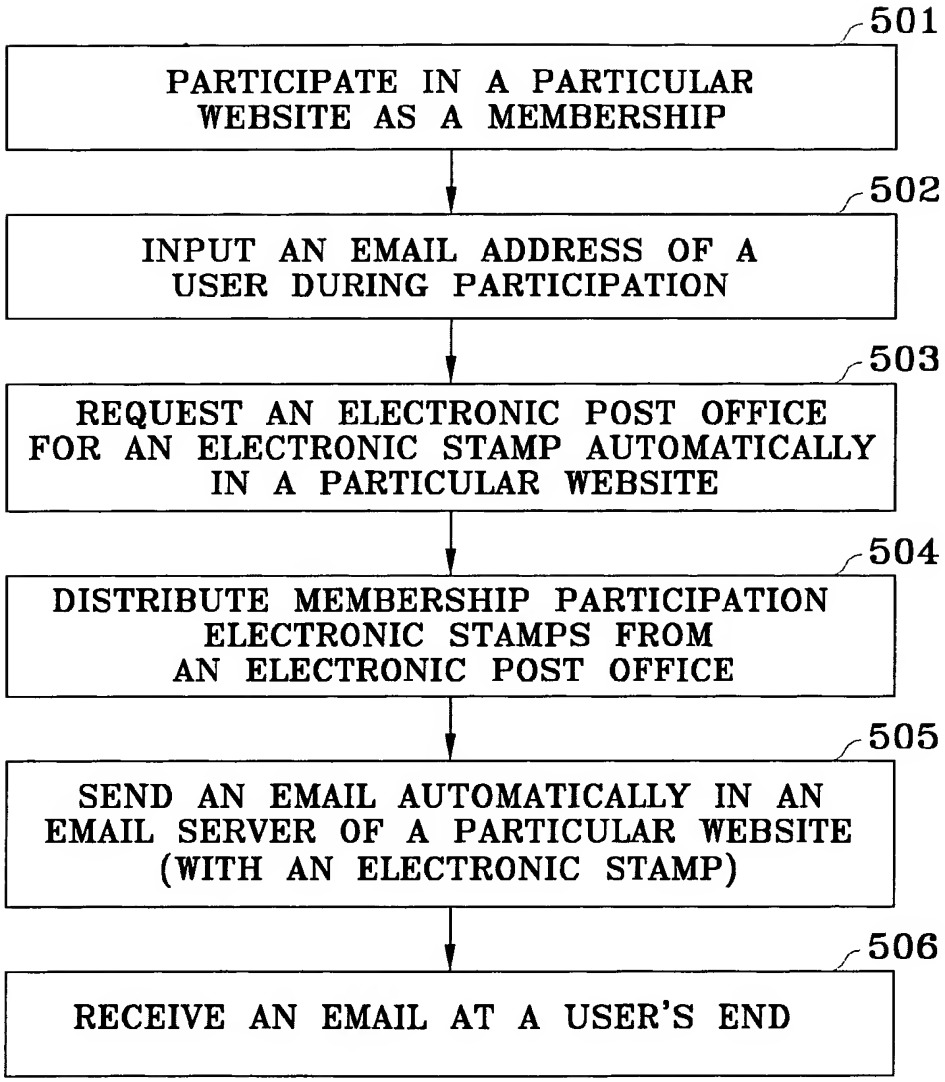
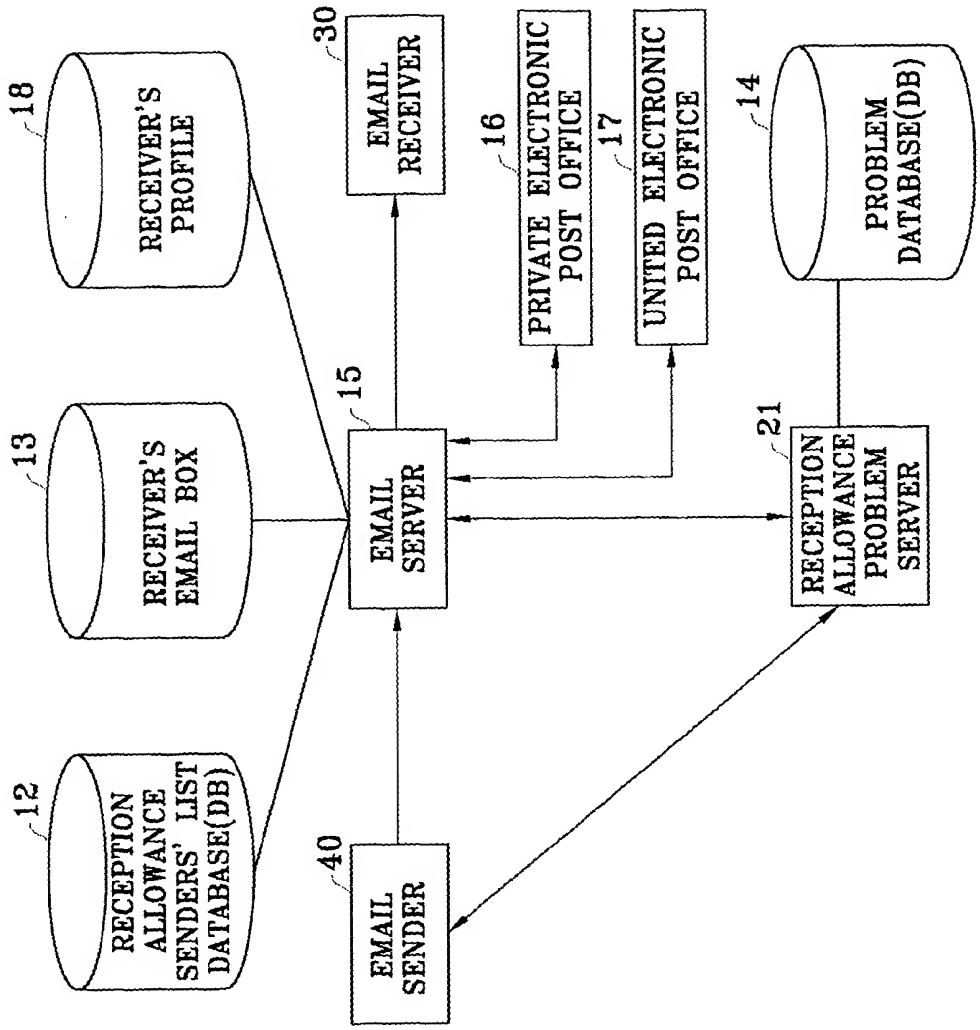

501
PARTICIPATE IN A PARTICULAR WEBSITE AS A MEMBERSHIP
502
INPUT AN EMAIL ADDRESS OF A USER DURING PARTICIPATION
503
REQUEST AN ELECTRONIC POST OFFICE FOR AN ELECTRONIC STAMP AUTOMATICALLY IN A PARTICULAR WEBSITE
504
DISTRIBUTE MEMBERSHIP PARTICIPATION ELECTRONIC STAMPS FROM AN ELECTRONIC POST OFFICE
505
SEND AN EMAIL AUTOMATICALLY IN AN EMAIL SERVER OF A PARTICULAR WEBSITE (WITH AN ELECTRONIC STAMP)
506
RECEIVE AN EMAIL AT A USER'S END

FIG. 6


18
RECEIVER'S PROFILE
30
EMAIL RECEIVER
16
PRIVATE ELECTRONIC POST OFFICE
17
UNITED ELECTRONIC POST OFFICE
14
PROBLEM DATABASE(DB)
13
RECEIVER'S EMAIL BOX
15
EMAIL SERVER
21
RECEPTION ALLOWANCE PROBLEM SERVER
12
RECEPTION ALLOWANCE SENDERS' LIST DATABASE(DB)
40
EMAIL SENDER

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR02/02356

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 G06F 17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

G06F 17/00, G06F 19/00, G06F 17/60

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean patents and applications for inventions since 1975
Korean Utility models and applications for Utility models since 1975

Electronic data base consulted during the intertnational search (name of data base and, where practicable, search terms used)

WPI, PAJ, IEEE/IEE Electronic Library(Since 1988) "SPAM, JUNK, MAIL, FILTERING, BLOCKING, QUESTION, REGISTRATION"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 2001-87956 A (ETAMPDOTCOM Ltd) 26 SEP 2001 see the whole document	1, 4-10
A	KR 2001-88973 A (KIM DONG-HWAN) 29 SEP 2001 see the whole document	1
A	KR 2001-92026 A (LEE JIN-KUK) 24 OCT 2001 see the whole document	20

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

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"E" earlier application or patent but published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents,such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
05 MARCH 2003 (05.03.2003)	06 MARCH 2003 (06.03.2003)

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Form PCT/ISA/210 (second sheet) (July 1998)